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Clinical and Molecular Detection of *Mycoplasma haemocanis* by using Real-time PCR in Dogs of South Provinces of Iraq

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Abstract: Present study aims to detect and quantify the *Mycoplasma haemocanis* in dogs using various diagnostic methods study included examination one hundred and twenty-five dogs 100 animals that showed different clinical signs in the southern governorates (Basrah, Dhi-Qar, Maysan and Al-Muthanna / Iraq) and twenty-five as control in both sexes and different age groups. Blood samples studies on anticoagulation for smear, complete blood count and PCR technique showed various clinical signs using different test at first blood smears stained with the Gemsia stain to detection of the *Mycoplasma haemocanis*. The diagnosis was confirmed using real-time polymerase chain reaction dogs in present study showed many clinical signs partial or complete loss of appetite 96%, pale of the mucus membranes 54.5%, congestion of the mucous membranes 18.1%, rapid and difficult respiration 51.5%, lethargy 24.2%, weight loss 78.7% and the presence of ticks on the animal's body 100%. *Mycoplasma haemocanis* is observed in blood smears (72%) parasitizing the red blood cell wall clustered separately or in the form of single chains .The polymerase chain test confirmed that 45.8% of the cases examined were positive for the test, and the results recorded that the highest infection rate (42.4%) in age of 5-10 years compared to other age groups**.** The present study recorded that the infection rate in males (38.7%) was higher than in females (27.4%).

Keywords: *Mycoplasma haemocanis*, Clinical signs, Real Time PCR, Iraq

Hemotropic mycoplasmas are characterized as cell wall-deficient bacteria that are found in a variety of feline, canine, bovine, ovine and wild animal hosts (Sashida et al 2013, Aquino et al 2014, Hampel et al 2014). The spherical, rod shaped, or ring-shaped microorganisms formerly named as *Haemobartonella* are uncultivable in culture until today. They attach to the outside surface of red blood cells and grow upon them (Messick 2004). *Hemotrophic mycoplasmas* are pleomorphic, epicellular, gram negative bacteria that are present on the surface of erythrocytes.The brown dog ticks *Rhipicephalus sanguineus* usually live in the crack and crevice of kennels that seriously infest dogs are threat in dogs' health These ticks transmit *M. haemocanis* to dogs during the process of blood sucking in dogs, three hemoplasma species have been identified: *Mycoplasma haemocanis, Candidatus M. haematoparvum,* and Candidatus *M. haemominutum* (Sykes et al 2005, Zhuang et al 2009, Roura et al 2010, Obara et al 2011). *Mycoplasma haemocanis*, a dominant canine *hemitropic Mycoplasma*, infects erythrocyte and usually leads to asymptomatic manifestation, but sometimescauses subclinical symptoms in dogs such as fever, anemia, anorexia, lethargy, weight loss and thrombocytopenia in more severe cases acute hemolytic anemia maybe occurs and frequently recovers. However, in some dogs this may cause death (Messick 2004, Kemming et al 2004b, Chalker 2005). Animals' present severe anemia to chronic infections without clinical manifestation chronically infected animals is usually asymptomatic. However, the infection tends to become noticeable in splenectomized dogs immunosuppressed, stressed, with concomitant diseases such as babesiosis, parvovirus, demodicosis and distemper, make the significant *Hemotrophic Mycoplasma*infection (Messick Harley 2015). There was no scientific document explaining the registration of *Mycoplasma haemocanis* in the Iraq southern governorates (DhiQar, Basra, Muthana, Maysan) in dogs, so current study conducted to identification present of *Mycoplasma haemocanis* in dogs with documented clinical signs and emphasized infection by molecular technique.

MATERIAL AND METHODS

Animals of study: Present study conducted to include one hundred of dog (49) males and females (51) aged between one and ten years in different breed the dogs suspected infected with *Mycoplasma haemocanis* from different southern Iraqi province (Basra, Dhi-Qar, Maysan and Al-Muthanna) during August to November 2020.

Clinical examination: All doges which suspected infected